Research

INTERNAL FACTORS AFFECTING ONLINE LEARNING ACCORDING TO STUDENT REFLECTION

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Abstract
Background The COVID-19 pandemic has changed many aspects of life worldwide, including medical education. Offline learning is being replaced by online to reduce the spread of disease through direct contact between the academic community. Along with technological developments, online learning is likely to continue even after the COVID-19 pandemic is over. Therefore, students must be able to adapt and prepare for the next online learning. The preparation can be started by self-assessing the online learning that has been followed so far and finding things that must be improved in future online learning.
Objective To explore the student's performance during online learning.
Methods This research was qualitative research using the reflection writings of 156 students regarding their performance during online learning, which would be analyzed according to the depth and content of the reflection.
Results Internal factors that support (strengths) and internal factors that inhibit online learning (weaknesses) through student reflection during online learning were found in this study. Internal factors such as maintaining health, self-management, adapting, and maintaining motivation can be maintained to support online learning. Internal factors such as anxiety, avoiding interaction, laziness, failure in time management, and inappropriate learning methods hindered online learning.
Conclusion Students can strengthen internal factors that support online learning and reduce internal factors that hinder online learning to optimize online learning in the future.
Keywords Online learning, reflection, reflective writing, reflection, medical students.

INTRODUCTION

The COVID-19 pandemic has changed many aspects of life around the world, including medical education. Learning activities that are carried out offline are replaced with online. This is done to reduce the risk of COVID-19 transmission by limiting direct interaction between lecturers and students. During the COVID-19 pandemic, various studies revealed changes in distance learning methods that were previously class-based or patient. This change in learning methods became the focus of educational development by 53% which was reported in a systematic review of the BEME Guide No. 63. The change is the use of video conferencing to deliver lecture materials, online seminars, replacement of clinical learning and consultation with online methods.[1-3]

Various studies on the evaluation of online learning have been carried out. In general, medical students in Singapore expressed satisfaction in participating in anatomy lessons using zoom.[4] The satisfaction with online learning was also reported by a quantitative study of 2520 students in Croatia. A qualitative study of 32 nursing students in Spain stated that the shift from offline to online learning was the most disturbing for older students, students from rural areas, and students with limited electronic resources.[5] Another qualitative study of 60 medical students from Saudi Arabia showed that online learning was well received and that students recognized several advantages, for example time savings and increased use of time.[6] Qualitative studies in Saudi Arabia showed that students face many challenges, including methodological problems,

perception of learning content, technical and behavioral during learning, and online exams.[6]

It is possible that online learning methods will continue to be carried out in the long-term considering that the COVID-19 pandemic is not yet known when it will end.[1] Gordon et al. (2020) stated that current educational developments had to be born due to COVID-19. The shift in online learning methods will likely persist after the pandemic, so student engagement, design, and future arrangements must be given great attention.[1]

In improving the quality of online learning and other forms of technology-based learning methods in the future, students need to have strategies to prepare them for changes in learning methods. In addition to evaluating teaching and learning activities, reflection can be done to increase readiness in undergoing learning methods in this pandemic era.[7] This study aims to determine the self-assessment of medical students during learning activities using the online method through reflection. In particular, this paper explores the positive things that support online learning and the negative things in students that hinder online learning. Thus, students can set learning strategies and are better prepared to carry out learning activities with the next online method, even after the pandemic ends.

METHODS

This research was qualitative research by examining the results of reflective writing from students during learning activities using online methods. This research was carried out from May to November 2021 with a population of all 2017-2020 students in the 2020/2021 mid-end academic year. The informants were all students of the Faculty of Medicine at Duta Wacana University. This research has received ethical approval from the UKDW Medical Faculty Health Research Ethics Committee No: 1317/C.16/FK/2021.

Prospective respondents who were willing to participate in the research, they were invited back to the online meeting 2 to be guided in their reflection. The reflection was written in a google form shared by researcher 1 through the chat column on google meet. The reflection process lasted for approximately 1 hour. Reflection writing was a minimum of 200 words or the equivalent of 1500 characters for each question, for a total of 4 questions. All of the respondents' reflection writings were then reviewed by researchers 1 and 2 to be categorized into four levels of REFLECT (Reflection Evaluation for Learners' Enhanced Competencies Tool) which consisted of 4 levels and the results of the reflection writing were separated based on the level to determine the depth of reflection (8,9). Reflection results that meet levels 3 (reflection) and 4 (critical reflection) were then assessed for their content using thematic content analysis.

RESULT

From the data collection results, there were a total of 156 respondents consisting of 43 respondents from the 2017 student year, 54 from the 2018 student year, 31 students from the 2019 student year, and 28 students from the 2020 student year. The response rate in this study was 38.24%. The age of the respondents is spread from 17-23 years where most were 21 years old (36, 3%). The gender of the respondents were 53 men (33.9%), 102 women (65.5%), and 1 other (0.6%).

From the analysis of reflection writing levels 3 and 4, as many as 88 reflection writings, 133 codes were obtained, grouped into 15 categories and four themes.

Theme 1
The first theme was positive things in students that support online learning (Strengths), which were categorized into physical aspects, mental aspects, managerial aspects, and aspects of the learning process.

Theme 2
The second theme was negative things in students that hinder online learning (Weaknesses), which were categorized into physical aspects, mental aspects, managerial aspects, and aspects of the learning process.

Theme 3
The third theme was things outside of students that support online learning or positive things that will be obtained if they can participate in online learning by maximizing Strengths and minimizing Weaknesses (Opportunities), which were categorized into aspects of interpersonal relationships, facilities, learning activities, and outcomes.

Theme 4

The fourth theme is things outside of students that hinder online learning or the negative things that will be obtained if they can participate in online learning by maximizing Weaknesses and minimizing Strengths (Threats), which are categorized into environmental aspects, learning processes, and outcomes.

The sample quotation for each theme can be seen in table 1.

Table 1. Quotations of each theme

Theme	Quotation
Strengths	*"During online learning, I was more able to manage time to study for a long time. More relaxed and less pressed about time. Considering that, I often try hard when studying offline because I have to go to campus (the campus and home are not close) yet when the practicum preparation is very strict." (P2)*
Weaknesses	*"During online learning, I was quite passive. I chose to listen rather than be active in giving opinions or asking questions. I also sometimes chose to remain silent and not actively ask questions in the hope that the class would end quickly because I was tired." (P133)*
Opportunities	*"Lecturers are also willing to accept online consultations so that students can voice their opinions outside of class."(P6)*
Threats	*"…it (online learning) must always be connected to a stable network. I myself often experience network problems that are quite annoying during my learning process" (P130)*

In a SWOT analysis, strengths and weaknesses come from within an organization or, in this context, are students themselves. In contrast, opportunities and threats come from the environment or outside of students.[10] This paper only discusses internal factors within students that affect online learning, while external factors from outside students will be written in other journals.

The first theme was positive things in students that support online learning (Strengths), which were categorized into physical aspects, mental aspects, managerial aspects, and aspects of the learning process. The learning process would be optimal if students maintained health, which could be achieved by adjusting their diet, consuming nutritious food, and exercising.

> *"I've also become less likely to stay up late doing homework, I can go to bed earlier and wake up earlier to work on assignments until class starts." (P106)*

Students needed to position themselves as if they were undergoing offline learning, for example bathing, dressing neatly, dressing up, and preparing a place to study. This was done to make better preparation for learning.

> *"Making myself as if I was doing activities as usual (offline). I usually do this (running activities like offline) by wearing nice clothes, dressing up like I want to leave the house, and preparing a comfortable study table." (P103)*

The physical aspect related to the learning process was that students seemed to be physically present by turning on the camera. This would make students focus on learning.

> *"I will fully turn on the camera so that I will not be tempted to leave my seat and will carefully listen to the lecturer's explanation. By turning on the camera I will tend to try to concentrate and sit with a good attitude." (P4)*

The next category in the first theme is mental aspects. Adaptation is one of the important aspects that students must have. The success of adaptation will make students able to follow the learning.

> *"Although during this online lecture, everything that is done is limited, but I will still try to be able to adapt as much as possible to this system because I think this system is very good because it is effective and efficient and will also be useful in the future." (P8)*

One of the adaptations was to change the mindset to learn independently.

"During online lectures, I tend to search more often in various sources regarding materials or things that I don't understand, because I am very aware that at times like this, I have to be more active in self-study because otherwise, I will be very busy. left behind." (P4)

Utilization of features in the learning platform could increase interaction and increase the perception of their presence, one of which was by turning on the camera.

"…I was involved in the class to always be on when asked or sought as a form of my responsibility during lecture hours. After that, by enforcing offline regulations while online, when you want to do anything during lecture hours while still asking permission from both the lecturer and the admin on duty as a polite attitude to do something." (P48)

Students must have a disciplined attitude to participate optimally in learning, one of which is being present on time. The optimal learning process is also supported by a good mood.

"When I feel in the mood to study, I am very excited to attend the lecture that day, and take notes, and focus on understanding what the lecturer is saying…." (P14)

Having free time during online learning made students more optimal in doing assignments. It was also supported by a good mood and attitude of totality. Perfectionist students tended to be more thorough in doing and submitting assignments. They were also responsible for finding valid references to do the task.

"This (doing assignments as well as I can) is a good habit because I will do assignments by looking for valid sources and checking back. In submitting assignments, I will check more than once the files I send. This is so that the files I send are exact (not another file assignment)." (P137)

Students who had a positive mental attitude thought to that there was no difference in the performance of offline and online learning. They could use their free time during online learning to study harder.

"There should be no other changes in learning when learning online, the only difference is the method. In addition, the way of learning and attitudes toward learning should not decrease or decrease but become better. During online learning, there is no need to spend time going to campus so that the available time is can be used to study." (P67)

A positive mental attitude was more formed if students had the motivation in learning. One of the motivations often mentioned in the reflection was the efforts of parents.

"…I will write on my desk that contains motivation in studying and then I will put a photo of my papa and mama on the study table so that when I am lazy to study, I can remember the hard work my parents have put in to pay for it. the life and education that I lead." (P98)

As self-motivation, students also made reminders in the form of writing containing errors so they don't repeat their mistakes again. They instilled the perception that it was possible that other friends who were dealing with a worse condition could survive more than themselves. Self-motivation could also be maintained by rewarding yourself for your achievements.

"In fact, I will give myself a reward if I get good grades and succeed in carrying out my plan." (P137)

The mental attitude above also had an impact on students to uphold integrity. If they could study optimally, students would become more confident, especially when taking exams.

"In doing online exams, I always do it honestly and don't cheat even though there are opportunities that I can cheat, but I try to be honest even though the results are not satisfactory." (P130)

The third aspect that played a role in the success of students undergoing online learning was the managerial aspect. Online methods made learning more flexible and efficient because they could learn anywhere and anytime.

"During online learning, initially I was more able to manage time to study for a long time. More relaxed and less pressed for time. Considering that I often try hard when studying offline because I have to go to campus (the campus and home are not close) yet when the practicum preparation is very strict." (P2)

Students also did time management by making an agenda for learning activities and setting priorities. Thus, students could make maximum use of their time to listen to lectures, attend webinars, and study independently. The success of participating in online learning was supported by future orientation and self-evaluation. With self-evaluation, one of which was a reflection, students became aware of the good and bad things that have been done and plans for future improvements.

The fourth aspect is the learning process. Online learning allows students to relax and enjoy the learning process.

"...Personally, I'm also more comfortable and focused on studying during online learning. Because my type of learning is visual, I can focus more on viewing PowerPoint directly from my laptop. Unlike when I was offline, the material was displayed on a projector which could be far from where I was sitting. Besides that, I can only focus on looking at the laptop screen without having to look at the heads of friends in the classroom who can get in the way." (P56)

At a deeper level of learning awareness, students did self-directed learning. They were aware of their learning needs and the limitations of meeting their learning needs only from college. The integration of knowledge from various sources and the use of the internet, as a learning medium for medical students, can help them with self-directed learning (12,17).

"Because learning online automatically makes me have to be able to learn to understand the material independently so I always look for as many learning references as possible so that it makes me more independent and responsible." (P130)

In addition to the positive things obtained and supported by online learning, there were also negative things from internal appeared in student reflection. These negative things are grouped into categories of physical, mental, managerial, and learning processes. From the physical aspect, it was found that students experienced a decrease in physical activity which had a bad effect on learning performance.

"Most of the time I spent just sitting in my room during these online lectures, it decreased my physical activity and in the end, I often felt weak and it was difficult to concentrate coupled with an unsupportive learning system." (P8)

The mental aspect that can reduce student learning performance is feeling bored and bored, of course, making the material presented during learning cannot absorbed properly by students.

"Currently online learning at home really makes me bored easily and has not been optimal lately, because it is less challenging to do learning." (P2)

Students also felt hesitant and embarrassed to interact with lecturers during the learning process. This made students more confused about the material they studied.

"It (lack of confidence) makes me sometimes hesitate to convey what I want to say. "Is what I said right or wrong earlier?", "What if the task I understand is wrong, right?". I often say that in my heart, because of my lack of self-confidence."(P107)

If students had difficulty adapting and did not have the motivation to learn, they would continue to decline in learning performance. As a result, it had an impact on students' physical and mental (burnout).

"However, with the continuation of online learning for too long, I feel my performance has decreased where I gradually feel bored, lack of activity, and routines that make "burnout"...." (P32)

The managerial aspect that could hinder online learning was lack of learning

management, such as being lazy, procrastinating, and wasting time. This would cause students to experience material accumulation so that work and learning results were not optimal.

> "In online learning, sometimes I still like to procrastinate on doing assignments. Tasks that I should be able to do ahead of time, but I still often pile up so that I just work on the deadline and it also sometimes affects me in doing my assignments to be less maximum." (P130)

Aspects of the learning process that hinder students during online learning are the incompatibility of learning methods and attitudes that are not aware of their role as students. Examples of these attitudes are lack of discipline, human error, belittling, and ignoring lectures. Students who ignore learning will miss important things and find it difficult to understand the material. As a result, students will need more time to understand the material through recordings, which can actually be used for other important things.

> "I also often left college several times because there were family events. Some time ago, I had to attend my sister's wedding so I chose to leave my college. I continued to attend college, but I didn't attend my college because there was an event (family event)."(P102)

Students who were passive avoided interaction, and avoided assignments also hindered the learning process. This made students and lecturers have different perceptions regarding learning materials. The achievements in each learning module would also not be maximized.

> "During online learning, I was quite passive. I chose to listen rather than be active in giving opinions or asking questions. I also sometimes chose to remain silent and not actively ask questions in the hope that the class would end quickly because I was tired." (P133)

During online learning, students were required to instill integrity to support learning success. Cheating committed by students, both in doing assignments or exams, greatly affected the quality of

learning, giving a bad image to themselves and their educational institutions.

> "Honestly, more and more I only rely on cheats. Sometimes I often oversimplify situations where I should be able to learn, starting from pre-test, post-test, even UB." (P3)

DISCUSSION

On the first theme, positive things from within students that support online learning, students often mentioned the importance of regulating sleep patterns. There were participants who said that online learning made their sleep patterns more regular. Meanwhile, in another study, medical students' sleep quality worsened during the pandemic in the form of insomnia.[22]

Because the changes in learning methods made students stressed, it was necessary to have good self-management. Stress, as the challenge of changing learning methods, was also found in research conducted in Saudi Arabia.[3] Adaptation in online learning during the pandemic was also written by Biwer et al. (2021) by grouping four category adaptation profiles of student respondents based on resource management strategies. The adaptable group, called the adapters, showed an increased level of autonomy and had better self-regulated learning than the other groups who had difficulty adapting.[23] All difficulties and limitations realized by students will make them learn more optimally.

Attendance could also be optimized by students by playing an active role during the discussion process. In addition to self-interest, student participation was a form of responsibility and respect for lecturers. The activeness of students in online learning shifted the paradigm of fully teacher-centered learning to become more student-centered, which was similar to research based on the collectivist culture in Saudi Arabia.[11] Motivation, both from lecturers and students, was one of the important things that must be prepared and built in the face of changes in online learning methods.[12,13]

Regarding integration issues, various studies revealed opportunities for cheating during online exams. The problem of cheating in online examinations could be proven from a

statistical analysis, as done by Ikram and Rabbani (2021), which revealed that the reduction in explanatory power for the online theoretical examinations of Physiology and Anatomy in Pakistan implied possible academic dishonesty in this particular component of the online exams.[14] One of the strategies the faculty can do to reduce cheating during online assessments is to change the order of questions.[12]

Based on a survey of 44% of medical students at the University of Indonesia who prefer offline learning, they agree that online learning is more efficient and can provide more time to study.[15] This finding is similar to a survey conducted on medical students in Jordan, where 79% of respondents stated that they saved time and 62.8% mentioned the benefits of time flexibility from online learning.[16] Even because of this advantage, student performance improved during online learning.[6] Time management was one of the online learning challenges found in a survey of medical students in Saudi Arabia and Indonesia.[3,15]

Students need to recognize learning styles, for example students with visual learning styles will feel more comfortable because students can see the appearance of lecture material freely. Students with visual learning styles are facilitated by online learning.[6] Learning strategies supported the online learning process, for example in this reflection, listening to lecture recordings, repeating material, and taking notes. Online learning gives students more time to study and review the materials.[15] However, the abundance of learning materials and the habit of procrastinating study often overwhelmed students.

In the reflection findings, students stated that they felt doubtful and embarrassed to interact with lecturers during online learning so they tended to be passive and did not turn on the camera. From these findings, it can still be seen this tendency proves the culture of collectivism because shyness is still found in online learning.[11]

If students could not do time management and self-management well during online learning, they could experience psychological changes, such as depression and anxiety, especially because of the lack of direct interaction with lecturers or friends. This finding was in line with the perception of medical students in China.[18] The need for interaction with lecturers and friends is in line with collectivist culture[11] and online learning prevents students from meeting this need.[16,19]

Anxiety was also reported by 84% of medical students in the United States because of the impact of the pandemic on their education process.[20] Anxiety, depression, and stress experienced by medical students undergoing online learning due to the pandemic, even when they study at home were also found by Vala et al. (2020). These psychological changes certainly have a negative impact on the psychological well-being of medical students.[21,22] Mentally related things make students demotivated. Mental support during the pandemic is one of the tips for teaching medical students online. The pandemic has an impact on mental issues, which is burnout, not only for health workers but also for medical students.[13]

Study limitations
The limitation of this research is that the reflection process is carried out only once. By reflecting more than once, the possible findings obtained will be richer. However, this reflection process is carried out immediately after learning for one semester ends and before learning the next semester. This can provide benefits for students in preparing for the next online learning. The result of this study was also limited to the local context but it can be applicable to other settings which have similar context.

CONCLUSION
From the reflection, results found internal factors that support online learning (strengths) and internal factors that hinder online learning (weaknesses). Internal factors such as maintaining health, self-management, adapting, and maintaining motivation are things that can be maintained to support online learning. Internal factors such as anxiety, avoiding interaction, laziness, failure in time management, and inappropriate learning methods are things that hinder online learning.

By knowing the internal factors that affect online learning, students and faculty can develop strategies and work together to

manage these factors so that they can optimize online learning in the future.

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